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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/544,479	04/07/2000	Seishi Hanaoka	501.38452X00	9481

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ANTONELLI, TERRY, STOUT & KRAUS, LLP  
1300 NORTH SEVENTEENTH STREET  
SUITE 1800  
ARLINGTON, VA 22209-9889

EXAMINER

VOLPER, THOMAS E

ART UNIT	PAPER NUMBER
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2665

DATE MAILED: 11/17/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/544,479

Applicant(s)

HANAOKA ET AL.

Examiner

Thomas Volper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_                      6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claims 11 and 13 are objected to because of the following informalities: It is unclear what is meant by "first and second channels are assigned to the same modem processing means when it is impossible to assign a second channel newly to a modem processing means to which said first channel is already assigned," as recited in claim 11. This statement appears to be contradictory. Applicant is claiming assignment of first and second channels to the same modem processing means, but at the same time saying it is impossible to do so. Claim 13 recites a very similar limitation. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Avidor et al. (US 6,144,652).

Regarding claim 1, Avidor discloses converting a plurality of carrier frequency band signals by a plurality of antennas provided in an RF base station to a plurality of base band received signals in an RF unit (see Figure 17; col. 24, lines 18-41). It is inherent that the

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receiving system contains some sort of buffer memory to contain received signals as the receive modem components are operating to demodulate the received signals. Avidor also discloses assigning a channel to each modem including checking for an idle time slot and assigning a channel to an idle time slot if an idle time slot is found, or avoiding assignment of said channel if no idle time slot is found (see Figure 4; col. 6, line 50 – col. 7, line 16).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Avidor et al. (US 6,144,652) in view of Yafuso et al. (US 6,108,536).

Regarding claims 2-4, Avidor discloses converting a plurality of carrier frequency band signals by a plurality of antennas provided in an RF base station to a plurality of base band received signals in an RF unit (see Figure 17; col. 24, lines 18-41). It is inherent that the receiving system contains some sort of buffer memory to contain received signals as the receive modem components are operating to demodulate the received signals. Avidor also discloses assigning a channel to each modem (see Figure 4; col. 6, line 50 – col. 7, line 16). Avidor fails to expressly disclose checking the load(s) of one, or a plurality of modem processing units, or calculation means, so as to assign a channel to a modem processing unit, or calculation means that has a load margin. Yafuso et al. discloses a base station that includes several cell site

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modems (CSM) cards each having several CSM chips that serve to transmit modulated signals and to track and demodulate received signals (col. 3, lines 40-54). Yafuso also discloses testing each CSM chip finger to provide data such as whether a finger is unassigned, assigned, assigned and locked, or locked and combining and to identify through which antenna(s) and sector(s) a chip is receiving a call (see Figure 2; col. 3, line 55 – col. 4, line 33). This data represents the load of a particular modem processing, or calculation means. Yafuso discloses using this data to balance the antennas. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the CSM chip testing means to measure the loads in the modems in the invention of Avidor. One of ordinary skill in the art would have been motivated to do this in order to assign the modems in a balanced manner for modulating and demodulating calls associated with mobile terminals.

Regarding claims 5 and 6, Yafuso discloses balancing antennas by using the data provided in the fields of Figure 2. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to either select a modem processing means with a lower load margin, or higher load margin. One of ordinary skill in the art would have been motivated to do this to perform the necessary action to achieve balanced antennas.

Regarding claims 7-9, Yafuso discloses plural antennas associated with plural sectors and that one CSM chip may be processing a call through plural sectors (col. 4, lines 27-29). It is well known in the art that in such beamforming systems, each sector uses a different frequency range to transmit and receive than any neighboring sector. This is to prevent interference between sectors. Thus, if a CSM chip is processing a call through plural sectors, the CSM chip, which represents a modem processing means, is processing channels at two different frequencies. At

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the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide this capability in the modems in the invention of Avidor. One of ordinary skill in the art would have been motivated to do this to provide a soft handover of a mobile terminal from one sector to another.

6. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yafuso et al. (US 6,108,536).

Regarding claims 10-13, Yafuso discloses plural antennas associated with plural sectors and that one CSM chip may be processing a call through plural sectors (col. 4, lines 27-29). It is well known in the art that in such beamforming systems, each sector uses a different frequency range to transmit and receive than any neighboring sector. This is to prevent interference between sectors. Thus, if a CSM chip is processing a call through plural sectors, the CSM chip, which represents a modem processing means, is processing channels at two different frequencies. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to process channels of two different frequencies using the same modem processing device, or CSM chip, in the invention of Yafuso. One of ordinary skill in the art would have been motivated to do this in order to provide a soft handover of a mobile terminal from one sector to another.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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- Miller (US 5,511,067) Layered Channel Element in a Base Station Modem for a CDMA Cellular Communication System

- Carey et al. (US 6,418,327) Methods and Determining an Optimum Sector Distribution within a Coverage Area of a Wireless Communication System


8. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Thomas E. Volper



November 3, 2003



HUY D. VU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600